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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,280	09/19/2003	Gerald Richard Beagle	A3-1662	2279
27127	7590	08/16/2005	EXAMINER.	
HARTMAN & HARTMAN, P.C. 552 EAST 700 NORTH VALPARAISO, IN 46383			WOLFE, DEBRA M	
			ART UNIT	PAPER NUMBER
			3725	

DATE MAILED: 08/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,280	BEAGLE, GERALD RICHARD	
	Examiner	Art Unit	
	Debra Wolfe	3725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |



DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

1. Paragraph 14 line 3 improper reference number is used, "10" the examiner suggests changing to "20".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaki et al (U.S. Patent # 4,457,157). Masaki et al discloses the same invention including a process of end-forming a tube with a tool assembly comprising of a holder (14), a bore (60''), an external die (60) with a guide hole (60', see col.6, line 41) which is reciprocable in an axial direction of the bore (60''), and a mandrel (61) attached to the holder (14) that is reciprocable relative to the external die (60) and reciprocally received in a bore (60'') defined by the external die (60). The end forming process as disclosed by Masaki et al consists of a single forcing impact of an external die (60) over the end of a work tube (W) and simultaneously inserting the mandrel (61) through the internal passage of the work tube (W). As the external die (60) is pushed over the work tube (W) the outer diameter of the work tube (W) is reduced, during this process the



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mandrel (61) does not interfere with the internal surface of the work tube (W), once the desired length of the tube has been reduced the mandrel (61) then performs an ironing operation with the internal surfaces (see col. 6, line 59) as it is removed from the internal passage of the work tube (W). This procedure is completed while the work tube is still positioned inside the external die (60). (See FIGS 6-10)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki et al (U.S. Patent # 4,457,157) in view of Official Notice. Whether the forcing step is preformed as a single impact or as multiple impacts it would have been obvious to one skilled in the art at the time of the invention to determine the amount of impacts required to obtain the required deformation.



2. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki et al (U.S. Patent #4,457,157) in view of Katsuo (JP #05271457). Masaki et al discloses the invention substantially as claimed except for wherein the tube is a heat exchanger tube. However, Katsuo teaches a process for end-forming a heat exchanger tube with at least one internal surface feature. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Masaki et al with the process of end-forming a heat exchanger tube as taught by Katsuo in order to obtain accurate and proper results from end-forming a heat exchanger tube.

3. Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki et al (U.S. Patent # 4,457,157) in view of Katsuo (JP #05271457). Masaki et al discloses the invention substantially as claimed except for wherein the tube is a heat exchanger tube having multiple internal enhancements on an internal circumference of the tube. However, Katsuo teaches a process for eliminating multiple "internal enhancements" (fins, 1 See FIG 1) from a heat exchanger tube by deformation without physically removing the material of the fins from the tube for the purpose of eliminating excessively restrict flow through the tube when the outer diameter has been reduced and to heighten the strength at the end of the heat exchanger tube. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Masaki et al with the process of eliminating multiple internal enhancements from a heat exchanger tube as taught by Katsuo in order to eliminate the restriction of flow through the tube after reduction of the outer diameter and to increase the strength at the reduced end of the heat exchanger tube.



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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


1. U.S. Patent Number 4,934,038 to Caudill teaches the process of flattening inwardly extending ridges within the internal surface of a tube with the use of a mandrel.
2. U.S. Patent Number 6,155,092 to Sahlem
3. European Patent Number 0188086 A2 to Thompson

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Debra Wolfe whose telephone number is (571) 272-1904. The examiner can normally be reached Monday - Friday 6am - 3:30pm with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached at (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Debra Wolfe
Examiner
Art Unit 3725


DERRIS H. BANKS
SUPERVISORY PATENT EXAMINER
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